

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
Troutdale vicinity
Multnomah County
Oregon

HAER No. OR-36-M

HAER
ORE
26-TROUT.V
1M-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE

HAER No. OR-36-M

HAER
ORE
26-TRout.V
1M-

Location: Spanning Horsetail Falls Creek, in Multnomah County, Oregon, on the Historic Columbia River Highway, beginning at milepost 34.6, in Multnomah County, Oregon.

UTM: 10/572720/5048740
Quad: Multnomah Falls, Oreg.--Wash.

Date of
Construction: 1914

Engineer: K. P. Billner, designing engineer, Oregon State Highway Department

Builder: The Construction Company, Portland

Owner: Oregon Department of Transportation

Present Use: Vehicular and pedestrian traffic

Significance: One of two nearly identical reinforced-concrete girder trestles on the Historic Columbia River Highway and one of four extant structures on the route that have a distinctive cap and arch concrete guard rail system.

Historian: Robert W. Hadlow, Ph.D., September 1995

Transmitted by: Lisa M. Pfueller, September 1996

PROJECT INFORMATION

This recording project is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. The HAER program is administered by the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) Division of the National Park Service, U.S. Department of the Interior. The Historic Columbia River Highway Recording Project was cosponsored in 1995 by HABS/HAER, under the general direction of Robert J. Kapsch, Ph.D., Chief, and by the Oregon Department of Transportation (ODOT), Bruce Warner, Region One Manager; in cooperation with the US/International Committee on Monuments and Sites (ICOMOS), the American Society of Civil Engineers (ASCE), and the Historic Columbia River Highway Advisory Committee.

Fieldwork, measured drawings, historical reports, and photographs were prepared under the direction of Eric N. DeLony, Chief of HAER; Todd A. Croteau, HAER Architect, and Dean A. Herrin, Ph.D., HAER Historian. The recording team consisted of Elaine G. Pierce (Chattanooga, Tennessee), Architect and Field Supervisor; Vladimir V. Simonenko (ICOMOS/Academy of Fine Arts, Kiev, Ukraine), Architect; Christine Rumi (University of Oregon) and Pete Brooks (Yale University), Architectural Technicians; Helen I. Selph (California State Polytechnic University, Pomona) and Jodi C. Zeller (University of Illinois, Urbana-Champaign), Landscape Architectural Technicians; Robert W. Hadlow, Ph.D. (ASCE/Pullman, Washington), Historian; and Jet Lowe (Washington, DC), HAER Photographer. Jeanette B. Kloos, ODOT Region One Scenic Area Coordinator; and Dwight A. Smith, ODOT Cultural Resources Specialist, served as department liaison.

Additional information about the Historic Columbia River Highway can be found under the following HAER Nos.:

OR-36	HISTORIC COLUMBIA RIVER HIGHWAY
OR-36-A	HISTORIC COLUMBIA RIVER HIGHWAY, SANDY RIVER BRIDGE AT TROUTDALE
OR-36-B	HISTORIC COLUMBIA RIVER HIGHWAY, SANDY RIVER BRIDGE (Stark St. Bridge)
OR-36-C	HISTORIC COLUMBIA RIVER HIGHWAY, CROWN POINT VIADUCT
OR-36-D	HISTORIC COLUMBIA RIVER HIGHWAY, CROWN POINT
OR-24	LATOURELL CREEK BRIDGE
OR-23	SHEPPERDS DELL BRIDGE
OR-36-E	HISTORIC COLUMBIA RIVER HIGHWAY, BRIDAL VEIL FALLS BRIDGE

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 3)

OR-36-F HISTORIC COLUMBIA RIVER HIGHWAY, WAHKEENA FALLS
FOOTBRIDGE
OR-36-G HISTORIC COLUMBIA RIVER HIGHWAY, WEST MULTNOMAH FALLS
VIADUCT
OR-36-H HISTORIC COLUMBIA RIVER HIGHWAY, MULTNOMAH CREEK BRIDGE
OR-36-I HISTORIC COLUMBIA RIVER HIGHWAY, MULTNOMAH FALLS
FOOTBRIDGE (Benson Footbridge)
OR-36-J HISTORIC COLUMBIA RIVER HIGHWAY, EAST MULTNOMAH FALLS
VIADUCT (Bridge No. 841)
OR-36-K HISTORIC COLUMBIA RIVER HIGHWAY, ONEONTA GORGE CREEK
BRIDGE
OR-36-L HISTORIC COLUMBIA RIVER HIGHWAY, ONEONTA TUNNEL
OR-49 MOFFETT CREEK BRIDGE
OR-36-N HISTORIC COLUMBIA RIVER HIGHWAY, TOOTHROCK & EAGLE
CREEK VIADUCTS
OR-36-O HISTORIC COLUMBIA RIVER HIGHWAY, TOOTHROCK TUNNEL
OR-36-P HISTORIC COLUMBIA RIVER HIGHWAY, EAGLE CREEK BRIDGE
OR-36-Q HISTORIC COLUMBIA RIVER HIGHWAY, EAGLE CREEK RECREATION
AREA (Forest Camp)
OR-36-R HISTORIC COLUMBIA RIVER HIGHWAY, MITCHELL POINT TUNNEL
& VIADUCT (Tunnel of Many Vistas)
OR-36-T HISTORIC COLUMBIA RIVER HIGHWAY, MOSIER TWIN TUNNELS
OR-36-U HISTORIC COLUMBIA RIVER HIGHWAY, MOSIER CREEK BRIDGE
(Bridge No. 498)
OR-30 DRY CANYON CREEK BRIDGE
OR-27 MILL CREEK BRIDGE

OR-56 COLUMBIA RIVER HIGHWAY BRIDGES

For shelving purposes at the Library of Congress, Troutdale
vicinity in Multnomah County was selected as the "official"
location for the various structures in the Historic Columbia
River Highway documentation project (HAER No. OR-36).

HISTORIC COLUMBIA RIVER HIGHWAY

The Pacific Northwest's Columbia River Highway, later renamed the Historic Columbia River Highway (HCRH), was constructed between 1913 and 1922. It is one of the oldest scenic highways in the United States. Its design and execution were the products of two visionaries: Samuel Hill, lawyer, entrepreneur, and good roads promoter and Samuel C. Lancaster, engineer and landscape architect, with the assistance of several top road and bridge designers. In addition, many citizens provided strong leadership and advocacy for construction of what they saw as "The King of the Roads."

Often, the terms "scenic highways" and "parkways" are used synonymously. Scenic highways are best described as those roads constructed to provide motorists with the opportunity to see up-close the landscape's natural beauty. Parkways are roads or streets often associated with city beautiful campaigns prevalent in the United States in the late 19th and early 20th centuries. They were part of a movement to create park-like settings out of wastelands. Many of the scenic highways in the United States are associated with the country's national park system and were built in the years following the First World War.

Beginning in the 1910s and early 1920s, the National Park Service (NPS) began construction of well-engineered paved roads with permanent concrete and masonry bridges and viaducts to make its park sites more accessible to an increasingly mobile tourist population. These included roads such as "Going-to-the-Sun Highway" in Glacier National Park and "All-Year Highway" in Yosemite National Park. The Historic Columbia River Highway, unlike many of its counterparts, was constructed through county-state cooperation. It became a state-owned trunk route or highway, part of a growing system of roads that criss-crossed Oregon.

Samuel Hill, once an attorney for James J. Hill and his large railroad empire, and later a Pacific Northwest investor and entrepreneur, was the state of Washington's most vocal good roads' spokesman in the late 19th and early 20th centuries. He promoted good roads at Seattle's Alaska-Yukon-Pacific Exposition in 1905, and shortly thereafter helped to establish the department of highway engineering at the University of Washington. With little success in convincing the Washington State Legislature to fund a major highway along the Washington side of the Columbia River, Hill found more receptive ears and pocketbooks with Oregon lawmakers and Portland area businessmen. Construction began on the HCRH in 1913. By 1922, it was

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 5)

complete, covered in a long-wearing and smooth-riding asphaltic-concrete pavement.¹

Hill hired Samuel Lancaster, an experienced engineer and landscape architect to design the Historic Columbia River Highway. Lancaster was noted for the boulevards that he created around Seattle's Lake Washington in the first decade of the 20th century as a component of the city's Olmsted-designed park system. In 1909 Lancaster became the first professor of highway engineering in Hill's department at the University of Washington. Lancaster had accompanied Hill and others to Paris in 1908 for the First International Road Congress, and afterwards the delegation toured western Europe to learn about continental road-building techniques. Seeing roads in the park-like setting of the Rhine River Valley inspired Hill to build a highway along the Columbia River Gorge. By 1912, Lancaster was conducting road-building experiments at Hill's estate, Maryhill, 100 miles east of Portland on the Washington side of the Columbia. The route they subsequently created was not a parkway, in the truest sense, but instead a scenic highway.²

The Columbia River Gorge's natural features distinguish it as the ideal setting. This relationship between the natural landscape and the Historic Columbia River Highway was described best by locating engineer John Arthur Elliott. He wrote, "All the natural beauty spots were fixed as control points and the location adjusted to include them." The road passed several waterfalls and rock outcroppings, including Thor's Heights (Crown Point), Latourell Falls, Shepperd's Dell, Bishop's Cap, Multnomah Falls, Oneonta Gorge and Falls, Horsetail Falls, Wahkeena Falls, and Tooth Rock. Natural features were made an integral component of the Historic Columbia River Highway.³

According to Lancaster, "There is but one Columbia River Gorge [that] God put into this comparatively short space, [with] so many beautiful waterfalls, canyons, cliffs and mountain domes." He believed that "men from all climes will wonder at its wild grandure [sic] when once it is made accessable [sic] by this great highway." In addition, the promoters sought to create a route that utilized the most advanced techniques available for road construction. In reflecting on the work's progress, Lancaster acknowledged that because of the country's rugged climate, with its wind and rain and winter weather, it had been "slow and tedious and somewhat more expensive than ordinary work." Nevertheless, he and his associates felt they were accomplishing a worthwhile task because, "for if the road is completed according to plans, it will rival if not surpass anything to be found in the civilized world."⁴

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 6)

In an more practical light, many observers saw the Historic Columbia River Highway as a lifeline connecting Portland with the many commercial and agricultural areas along the Columbia River. Some even envisioned it as part of a spider web of similarly constructed routes radiating out towards central and eastern Washington and northern Idaho, meeting routes leading to other parts of the region and nation.

The Historic Columbia River Highway was a technical and civic achievement of its time, successfully mixing sensitivity to the magnificent landscape and ambitious engineering. The highway has gained national significance because it represents one of the earliest applications of cliff-face road building as applied to modern highway construction. Lancaster emulated the European styles of road building in the Columbia River Gorge, while also designing and constructing a highway to advanced engineering standards. Throughout the route, engineers held fast to a design protocol that included accepting no grade greater than 5 percent, nor laying out a curve with less than a 200' turning radius. In rare cases where a tighter curve was used, Lancaster reduced grades and widened pavement. The use of reinforced-concrete bridges, combined with masonry guard rails, guard walls, and retaining walls brought together the new with the old - the most advanced highway structures with the tried and tested. In building the HCRH, Lancaster artfully created an engineering achievement sympathetic to the natural landscape.⁵

In the days before the formation of a comprehensive state highway plan, Multnomah, Hood River, and Wasco counties cooperated, sometimes unwillingly, with the newly-formed Oregon State Highway Commission (1913) in constructing the HCRH. Initially a group of recently elected Multnomah County commissioners, strong supporters of the proposed route, resolved that the highway commission take charge of its road building activities, with access to \$75,000 in county tax revenues. Soon crews surveyed the route through Multnomah County and constructed one mile of road.

Boosters stumped for the route's completion to the Hood River County line. Local clubs sent out men and boys for weekend work parties to show public support for the undertaking. One photograph from the period, depicts work parties with picks and shovels in hand and placards such as "Gang No. 7, Portland Ad Club, Stalwarts," or "Gang No. 3, Portland Realty Board, We will ROCK the Earth." The highway received much patronage, although some citizens were less than enthusiastic about its construction. Opponents showed their views with placards declaring, "I WON'T WORK, To Hell With Good Roads, We Don't Own Autos." Many "mossbacks" had no use for good roads and were satisfied

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 7)

traveling the network of rutted, narrow, steeply-graded backwoods trails. Nevertheless, the public generally supported the highway's construction. Multnomah County Commissioners levied a direct tax sufficient to fund road building to the Hood River County line, and subsequently, the people voted a \$1 million bond issue to pave the road with asphalt.⁶

Other counties similarly supported this scenic highway innovation. In 1914, Hood River County voters approved the sale of \$75,000 in bonds to initiate their portion of the road's construction. Finally, in 1915, Wasco County commissioners financed a survey to locate the route through their jurisdiction. By 1916, though, the state highway commission was reorganized and given a greater mandate over state highway construction, taking much of it out of local hands. Passage of the Federal Aid Road Acts of 1916 and 1921 gave the Oregon State Highway Commission matching funding to complete the HCRH through Wasco County, and eventually to complete the route to its eastern terminus at Pendleton, in Umatilla County, by the early 1920s. At the same time, the state, working with counties west of Portland, completed another portion of the Columbia River Highway to the sea at Astoria. Eventually it became part of the national highway system and was designated part of U.S. 30.⁷

By the late 1930s, construction of Bonneville Dam, a New Deal project aimed at providing flood control on the Columbia River and generating electricity, caused a realignment of a portion of the Historic Columbia River Highway near Tooth Rock and Eagle Creek, in eastern Multnomah County. It was evident that the old highway was too outdated to provide safe, efficient travel for modern motor traffic. By 1954 it was bypassed in its entirety from Troutdale to The Dalles by a new water-level route. This new road was subsequently upgraded to a four-lane divided roadway and eventually renamed Interstate 84. Only portions of the old route remained as a reminder of its early modern highway engineering accomplishments.

HORSETAIL FALLS BRIDGE

The Historic Columbia River Highway's alignment from Crown Point, milepost 23.9, to Horsetail Falls Bridge, milepost 34.6, takes the highway along one of the largest concentrations of high waterfalls in North America. Near the eastern end of this section lies Horsetail Falls, a 176' cataract that looks like the tail of a giant white horse. It drops off a basalt cliff immediately to the south of the HCRH, misting the roadway. It ends in a pool that continues on to form Horsetail Falls Creek, passing under Horsetail Falls Bridge as it makes its way to the

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 8)

Columbia River. The name "'Horsetail Falls' has been in use since pioneer days in Oregon," according to the compiler of *Oregon Geographic Names*, and is purely descriptive of the site.⁸

During the Historic Columbia River Highway's construction, K. P. Billner, designing engineer for the Oregon State Highway Department, created plans for several bridges for the Multnomah County Road Department, including Horsetail Falls Bridge. His plan called for a 60'-0" reinforced-concrete deck girder trestle, similar in design to the Oneonta Gorge Creek Bridge (HAER No. OR-36-K), one-third of a mile to the west on the HCRH.

DESIGN AND DESCRIPTION

The Horsetail Falls Bridge is a three-span 60'-0" reinforced-concrete deck girder trestle. It is 24'-0" wide and has a roadway measuring 22'-0" curb-to-curb. The curb and guardrail form an integral unit, cantilevered out from the girder. The curb and square endposts have bushhammered inset panels. The railing takes the form of 12"-wide slender concrete plaster arches, spaced two per span, with beveled rail caps, and interrupted by 12"-square chamfered and capped posts. Reinforcing wire was used in the rail caps, while metal "hyrib" lath was used in the plaster arches. This design is common on the Historic Columbia River Highway, and is found on the West and East Multnomah Falls viaducts (HAER Nos. OR-36-G and OR-36-J), and Oneonta Gorge Creek Bridge (HAER No. OR-36-K). It was also seen on at least one other structure on the HCRH, a short viaduct that existed west of Vista House and Crown Point Viaduct (HAER No. OR-36-C).⁹

Difficulty in finding firm pier foundations in Horsetail Falls Creek's wide, flat, and gravelly stream caused K. P. Billner to design a structure with a series of small piers, or a "pile trestle," as he labeled it. Five sets of piling were sunk below the streambed to bedrock with a small, 300 to 400 pound horse-powered hammer. The many small piers dispersed the bridge's dead and live loads without a heavy concentration at just a few places. The piling was cut off below the streambed's surface and the footings for the reinforced-concrete trestle piers were placed on top of them. Under the outer spans, Billner had the stream bank riprapped at a $1\frac{1}{2}$:1 slope to protect it from erosion. The Construction Company received the contract for Horsetail Falls Bridge on March 12, 1914 and completed it by 1 October 1914 at a cost of \$1,819.70. It used 123.4 cubic yards of Class A (1:2:4) concrete.¹⁰

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 9)

REPAIR AND MAINTENANCE

Maintenance records for the Horsetail Falls Bridge reveal little about repairs made to the bridge since its construction. It appears structurally sound. In the early 1990s, an Oregon Department of Transportation mason recast the concrete plaster arch and cap guardrail on both viaducts as part of a long-term rehabilitation program for historic road resources along the HCRH.

ENDNOTES

¹For good syntheses of the Pacific Northwest good roads' movement, see John Kevin Rindell, "From Ruts to Roads: The Politics of Highway Development in Washington State" (M.A. thesis, Washington State University, 1987) and Hugh M. Hoyt, Jr., "The Good Roads Movement in Oregon, 1900-1920" (Ph.D. diss., University of Oregon, 1966); Oral Bullard, *Lancaster's Road: The Historic Columbia River Scenic Highway* (Beaverton, OR: TMS Book Service, 1982): 31; Ronald J. Fahl, "S. C. Lancaster and the Columbia River Highway: Engineer as Conservationist," *Oregon Historical Quarterly* 74, no. 2 (June 1973): 112.

²Fahl, "S. C. Lancaster and the Columbia River Highway," 105-07.

³John Arthur Elliott, "The Location and Construction of the Mitchell Point Section of the Columbia River Highway" (C.E. thesis, University of Washington, 1929): 3.

⁴Samuel C. Lancaster to Amos S. Benson, 7 February 1914, folder "Multnomah County, 1914," box 4, RG 76A-90, Oregon State Archives, Salem.

⁵Dwight A. Smith, "Columbia River Highway Historic District: Nomination of the Old Columbia River Highway in the Columbia Gorge to the National Register of Historic Places, Multnomah, Hood River, and Wasco Counties, Oregon" (Salem, OR: Oregon Department of Transportation, Highway Division, Technical Services Branch, Environmental Section, 1984): 3.

⁶Ronald J. Fahl, "S. C. Lancaster and the Columbia River Highway: Engineer as Conservationist," *Oregon Historical Quarterly* 74, no. 2 (June 1973): 111; Samuel C. Lancaster, "The Revelation of Famous Highways: A Symposium," in *American Civic Annual* (n.p., 1929): 109.; see photograph in the Oregon Historical Society collection, negative no. 38744; C. Lester Horn, "Oregon's Columbia River Highway," *Oregon Historical Quarterly* 66, no. 3 (September 1965): 261.

⁷*Second Annual Report of the Engineer of the Oregon State Highway Commission* (Salem, 1916): 26-30.

⁸Lewis A. McArthur, *Oregon Geographic Names*, 6th ed., revised and enlarged by Lewis L. McArthur (Portland: Oregon Historical Society Press, 1992): 424.

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 11)

⁹See original ink-on-linen of "Pile Trestle over Horse Tail Creek," Drawing No. 278, in Bridge No. 4543, Maintenance Files, Bridge Section, ODOT, Salem; Samuel Christopher Lancaster, *The Columbia: America's Great Highway through the Cascade Mountains to the Sea*, 2d ed. (author, 1916): 108.

¹⁰"Pile Trestle over Horse Tail Creek," Drawing No. 278; K. P. Billner to S. C. Lancaster, Consulting Engineer, 30 June 1914, in "Columbia River Highway--K. P. Billner, Resident Engineer, 1914," 2/21, Mss 2607, Oregon Historical Society, Portland; "Reinforced Concrete Bridges on the Columbia Highway in Multnomah County," *First Annual Report of the Highway Engineer* (Salem, OR: 1914): 189; The writer of "Reinforced Concrete Bridges on the Columbia Highway in Multnomah County," in *First Annual Report of the Highway Engineer* (Salem, 1915) stated that the Pacific Bridge Company of Portland constructed the eight structures east of Latourell Creek Bridge, yet "Exhibit B" in the same report lists The Construction Company of Portland as the contractor for Latourell Creek Bridge, Shepperd's Dell Bridge, Oneonta Gorge Creek Bridge, and Horsetail Falls Bridge. See pages 189-90 and Exhibit B. In addition, correspondence in the Multnomah County Roadmaster Records, Mss 2607, Oregon Historical Society suggests the latter interpretation.

SOURCES CONSULTED

Allen, John Eliot. *The Magnificent Gateway: A Layman's Guide to the Geology of the Columbia River Gorge*. Forest Grove, OR: Timber Press, 1979.

Billner, K. P. "Design Features of Various Types of Reinforced Concrete Bridges Along the Columbia Highway in Oregon." *Engineering and Contracting* (10 February 1915): 121-23.

_____. "Some Bridges on the Columbia Highway." *Engineering News* 72, no. 24 (10 December 1914): 1145-49.

Bowlby, Henry L. "The Columbia Highway in Oregon." *Engineering News* 73, no. 2 (14 January 1915): 62-64.

_____. "The Columbia Highway in Oregon." *American Forestry* 22, no. 271 (July 1916): 411-16. Also reprinted with several articles from *Contracting* (1916): 12-19.

_____. "Columbia Highway Tunnel." *Engineering News* 75, no. 10 (9 March 1916): 446-48.

Brady, F. J. "The Columbia River Highway in Oregon." *Good Roads* (6 October 1920): 167-71.

"The Columbia River Highway in Oregon." *Good Roads* (1 January 1916): 3-8

Fahl, Ronald J. "S. C. Lancaster and the Columbia River Highway: Engineer as Conservationist." *Oregon Historical Quarterly* 74, no. 2 (June 1973): 101-44

Historic American Engineering Record Inventory Cards: Columbia River Scenic Highway." Prepared by Dwight A. Smith, Highway Division, Oregon Department of Transportation, August 1981.

Horn, C. Lester. "Oregon's Columbia River Highway." *Oregon Historical Quarterly* 66, no. 3 (September 1965): 249-71.

Lancaster, Samuel C. "The Revelation of Famous Highways: A Symposium." In *American Civic Annual* (n.p., 1929): 107-11.

Lockley, Fred. *History of the Columbia River Valley from The Dalles to the Sea*. Chicago: S. J. Clarke Publishing Co., 1928.

Oregon Department of Transportation. Bridge Section. Files

HISTORIC COLUMBIA RIVER HIGHWAY,
HORSETAIL FALLS BRIDGE
HAER No. OR-36-M
(Page 13)

Oregon Historical Society. Mss 2607, Multnomah County Roadmaster Records.

Oregon State Archives, RG 76A-90, Oregon State Highway Department, General Correspondence Files.

Oregon State Highway Department. *Annual and Biennial Report*. Salem, 1914-22.

Portland Oregon Journal, 1913-22.

Portland Oregonian, 1913-22.

Rogers, Howard O. "A Day on the Columbia Highway: The Reward of One Who Overcame Indifference to Homemade Attractions." *Sunset, the Pacific Monthly* (n.d.): 72-80.

Smith, Dwight A. "Columbia River Highway Historic District: Nomination of the Old Columbia River Highway in the Columbia Gorge to the National Register of Historic Places, Multnomah, Hood River, and Wasco Counties, Oregon." Salem: Oregon Department of Transportation, Highway Division, Technical Services Branch, Environmental Section, 1984.

DATA LIMITATIONS

The Horsetail Falls Bridge received some press during the Historic Columbia River Highway's construction. In addition, an original ink-on-linen construction drawing exists, showing elevation, details, and sections for this structure. Information concerning its service since then was not available.